- **Test for C**

	F_{Low}	F_{High}	Notes
1	1.075 KHz	299.7 KHz	No connection for A_x, B_x and No attenuation at output "0" dB
2	2.04 KHz	522.4 KHz	
3	3.012 kHz	715.05 KHz	
4	4 KHz	885.6 KHz	
5	5 KHz	1.35 Hz	

- **Test for A_x**

	F_{Low}	F_{High}	Notes
.2	4.5 KHz	941.08 KHz	C on Scale "5" Attenuation "0" dB A_x connect
.4	3.73 KHz	816.91 KHz	
.6	2.86 kHz	656.4 KHz	
.8	1.83 KHz	457.63 KHz	
1	0.849 KHz	225.6 KHz	

- **Test for B_x**

	F_{Low}	F_{High}	Notes
.02	4.85 KHz	1.0168 MHz	C on Scale "5" Attenuation "0" dB B_x connect
.04	4.722 KHz	996 KHz	
.06	4.58 kHz	970.3 KHz	
.08	4.445 KHz	949.4 KHz	
.1	4.347 KHz	933.23 KHz	

- **Test for attenuation.**

	V_o	dB	Notes
0 dB	860 mV	0	C on Scale "1" Attenuation "0" dB At Low range
-6	460 mV	-5.43	
-9	260 mV	-10.39	
-12	220 mV	-11.84	
-16	100 mV	-18.69	
-20	72 mV	-21.54	

LAB [2]

Low pass Filter & Band pass Filter

First Low pass Filter:

Steps of experiments:

- Set {VCO} at Low range frequency because Cutoff Frequency in the Low range of filter.
- At Low frequency under cutoff Frequency Show on the oscilloscope "Distorted Sine Wave"
- Increase Frequency Gradually to reach unit Pure sine wave with Max Amplitude.
- Increase frequency from {VCo} to reach $v_o = v_{max}$/Sqart(2).
- Record F_o at $v_o = v_{max}$/Sqart(2).

Second Band pass Filter:

Steps of experiment.

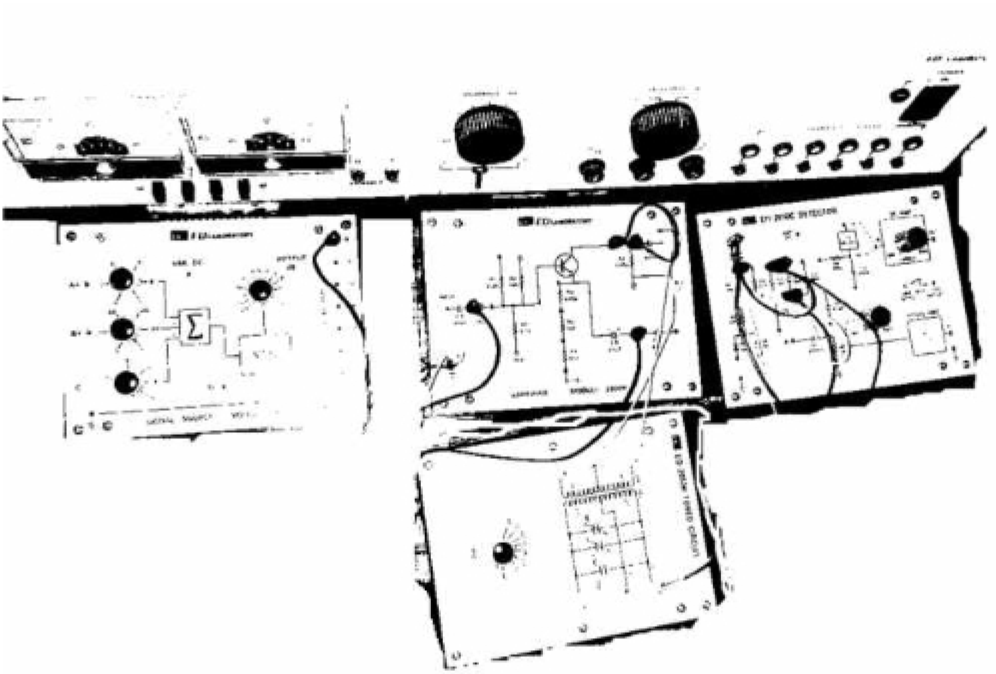
- Set {VCO} on High Range.
- Adjust {VCO} output at (465 KHz)
- Connect tuned circuit to {VCO} output.
- Connect tuned circuit to oscilloscope.
- Readjust Frequency of the tuned circuit to reach Max output voltage for signal and Record.
- Change {VCO} output frequency to reach v_{max}/Sqart(2) to get F_L .
- Change {VCO} output frequency to reach v_{max}/Sqart(2) to get F_h.
- $Bw = F_h - F_L$

Resultant in Lab:

Low Frequency "F_L"	454.5 KHZ
High Frequency "F_H"	467.3KHZ
Band width "BW"	12.8KHZ

Full Am Lab[3,4]

Layout:



Procedure:

A- The Transistor as a Modulator.

1- Set the frequency from signal source (VCO) about 465 KHz.
2- Set the variable attenuator control to 0dB.
3- Set the output of function generator to 1 kHz sine wave.
4- Set the amplitude control to zero.
5- Pass the output signal of the transistor module through a transformer (tuned circuit).
6- Set the tuning control to give a maximum output display.
7- Pass the output through a tuned amplifier then into the detector.

lab[4]

Full FM

Procedure:

A- Adjusting to generate FM modulation.

- On the module 2950 A module:
  Set variable attenuator to 0 dB.
  Set the manual frequency control C to 465 kHz.
- On the function generator:
  Set the frequency to 200 Hz.
  Set the wave form to sinewave.
  Using the oscilloscope, exactly set the output waveform to 10v (peak-to-peak).
- On the 2950A module
  Watching the frequency (VCO) adjust B sensitivity control so that the frequency changes either side or 465 KHz by 200Hz.

B- Demodulation FM.

- The slope detector is composed of the tuned circuit connected to the signal source.
- On the function generator.
  Select sine wave output.
  Set the frequency at 200 Hz.
  Set the signal amplitude at 1 volt (peak-to-peak).
- Adjust the controls for a stable display. Vary the setting of the tuning, capacitor on the tuned from end to end.
- If the tuned circuit is tuned to a resonant frequency f just away from center frequency.
  the slope characteristic will provide an output voltage proportional to the input frequency.

As frequency varies (FM) amplitude modulated voltage- appears across the tuned circuit.

These are two possible regions of operation, on either of the peak.